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NOTICE OF ALLOWANCE AND FEE(S) DUE

7590 02/07/2002

DANIEL M CAVANAGH
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EXAMINER	
NGUYEN, TANH Q	
ART UNIT	CLASS-SUBCLASS
2182	710-001000

DATE MAILED: 02/07/2002

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/236,062	01/22/1999	RANDY X. ZHAO	33850/PYI/S6	2001

TITLE OF INVENTION: COMMAND REORDERING FOR OUT OF ORDER BUS TRANSFER

TOTAL CLAIMS	APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
16	nonprovisional	NO	\$1280	\$0	\$1280	05/07/2002

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above. If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or

B. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

☐ Applicant claims SMALL ENTITY status.
See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and mail this form, together with applicable fee(s), to:

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CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

7590 02/07/2002

**DANIEL M CAVANAGH
CHRISTIE PARKER & HALE
P O BOX 7068
PASADENA, CA 911097068**

Note: The certificate of mailing below can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing.

Certificate of Mailing

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above on the date indicated below.

(Depositor's name)
(Signature)
(Date)

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16	nonprovisional	NO	\$1280	\$0	\$1280	05/07/2002
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EXAMINER	ART UNIT	CLASS-SUBCLASS
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NGUYEN, TANH Q	2182	710-001000
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1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). Use of PTO form(s) and Customer Number are recommended, but not required.

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47) attached.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

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Please check the appropriate assignee category or categories (will not be printed on the patent) ☐ individual ☐ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:

- ☐ Issue Fee
- ☐ Publication Fee
- ☐ Advance Order - # of Copies _____

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- ☐ A check in the amount of the fee(s) is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Commissioner is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

The COMMISSIONER OF PATENTS AND TRADEMARKS is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature)

(Date)

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Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending on the needs of the individual case. Any comments on the amount of time required to complete this form should be sent to the Chief Information Officer, United States Patent and Trademark Office, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND FEES AND THIS FORM TO: Box Issue Fee, Assistant Commissioner for Patents, Washington, D.C. 20231

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7590 02/07/2002			EXAMINER	
DANIEL M CAVANAGH CHRISTIE PARKER & HALE P O BOX 7068 PASADENA, CA 911097068			NGUYEN, TANH Q	
			ART UNIT	PAPER NUMBER
			2182	
DATE MAILED: 02/07/2002				

Determination of Patent Term Extension under 35 U.S.C. 154 (b)
(application filed after June 7, 1995 but prior to May 29, 2000)

The patent term extension is 0 days. Any patent to issue from the above identified application will include an indication of the 0 day extension on the front page.

If a continued prosecution application (CPA) was filed in the above-identified application, the filing date that determines patent term extension is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system. (<http://pair.uspto.gov>)

Notice of Allowability

Application No.

09/236,062

Examiner

Tanh Q. Nguyen

Applicant(s)

ZHAO ET AL.

Art Unit

2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to communications filed 01/17/02.
2. ☒ The allowed claim(s) is/are 1-3, 6-8, 11-13 and 16-22.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☒ CORRECTED DRAWINGS must be submitted.
 - (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☒ to Paper No. 7.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. 9.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the top margin (not the back) of each sheet. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1 <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 4 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____ |
| 5 <input type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. _____ | 6 <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other |

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JK
2-6-02

EXAMINER'S AMENDMENT/COMMENTS

Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with the Attorney for Applicant, Susan Yee (Reg. No. 41,388) on February 5, 2002.

The application has been amended as follows:

Cancelled claims 4-5, 9-10, 14-15, and 23-34.

Amended claims 1-3, 6-8, 11, 13 and 18-22 as follows:

1. (Twice amended) A method of providing ordered data transmitted from a data source to a data destination over a bus, comprising the steps of:

C- writing items of data into sequentially ordered areas of a memory, the items of data having a predefined order in the data source, the sequentially ordered areas of memory being identifiable by addresses, each item of data being placed in an area having an associated address in the data source, the items of data further comprise commands and parameters;

transmitting the items of data and associated addresses from the data source to the data destination over the bus, the items of data being transmitted in an order other than the predefined order;

receiving the items of data and the associated addresses in the data source from the bus;

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examining the associated address in the data source for each item of data received from the bus; [and]

placing each item of data received from the bus in one of multiple sequentially arranged areas of a storing buffer, the storing buffer further comprises a plurality of storage buffers, each of the plurality of storage buffers having an associated read availability status array, each item being placed based on the associated address in the data source for each item, the placement of the items of data causing reordering of the received items of data; and

reading an item of data from all of the storage buffers and placing the read items of data in a storage memory if all of the read availability status arrays indicate data available for reading, and reading an item from one of the storage buffers and providing the read item to a command interpreter, which performs the steps of examining the items of data and determining which parameters pertain to a command, if at least one but less than all of the read availability status arrays indicate data available for reading.

2. (Once amended) The method of providing ordered data [to a device] of claim 1 wherein [the items of data comprise commands and parameters,] each parameter pertains [pertaining] to a command.

3. (Once amended) The method of providing ordered data [to a device] of claim 2 further comprising examining the items of data to determine whether the items of data are commands or parameters.

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6. (Once amended) The method of providing ordered data [to a device] of claim [5] 1 wherein the storing buffer has at least one associated read availability status array comprised of a plurality of read availability indicators, each of the multiple sequentially arranged areas of the storing buffer having a corresponding read availability indicator.

⁶
7. (Once amended) The method of providing ordered data [to a device] of claim ⁴~~6~~ further comprising setting the corresponding read availability indicator of the read availability status array to indicate data availability for reading when data is placed in the corresponding area of the storing buffer.

⁶
8. (Once amended) The method of providing ordered data [to a device] of claim ⁴~~7~~ 6 further comprising setting the corresponding read availability indicator of the read availability status array to indicate data unavailability for reading when data is read from the corresponding area of the storing buffer.

⁷
11. (Once amended) The method of claim [10] 1 wherein each of the storage buffers has an associated direct read status array comprised of a plurality of direct read status indicators, each of the multiple sequentially arranged areas of the [storage] storing buffer having a corresponding direct read status indicator, and the method further comprises setting the corresponding direct read status indicator to indicate a direct read if an item is read from a corresponding area of the [storage] storing buffer when less than all of the read arrays indicate data availability.

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13. (Once amended) The method of claim [12] ⁷ ~~11~~ wherein status of the read availability status arrays and the direct read status arrays is determined by examining the read availability status arrays and the direct read status arrays, and examination and setting of the read availability status arrays and the direct read status arrays is performed on an indicator by indicator basis.

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18. (Once amended) The bus interface unit of claim [17] ¹⁰ ~~16~~ wherein the plurality of storage buffers include means for indicating whether each of the plurality of slots contains data items not provided to [the] a command interpreter.

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19. (Once amended) The bus interface unit of claim [18] ¹⁰ ~~16~~ further comprising means for providing data items from one slot of each of the plurality of storage buffers to a temporary storage area, and means for providing data items stored in the temporary storage area to [the] a command interpreter.

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20. (Once amended) The bus interface unit of claim ¹³ ~~19~~ wherein the plurality of storage buffers include means for indicating whether each of the plurality of slots [contained] contains data items provided to the command interpreter without the data items being first provided to the temporary storage area.

15
21. (Once amended) The bus interface unit of claim [20] ¹⁰ ~~16~~ further comprising a receive FIFO, with the first router routing data items received from the bus to one of the plurality of storage buffers by way of the receive FIFO.

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C³ 22. (Once amended) The bus interface unit of claim ¹⁶21 wherein data item is received by the bus interface unit at a bus clock rate and the bus interface unit operates at [the] a computer device clock rate, the receive FIFO [is input] inputting data item at the bus clock rate and [outputs] outputting data item at the computer device clock rate.

Examiner's Statement of Reasons for Allowance

2. The following is an examiner's statement of reasons for allowance: The prior art, either individually or in combination, does not teach reading an item of data from all of the storage buffers and placing the read items of data in a storage memory if all of the read availability status arrays indicate data available for reading; and reading an item from one of the storage buffers and providing the read item to a command interpreter, which performs the steps of examining the items of data and determining which parameters pertain to a command, if at least one but less than all of the read availability status arrays indicate data available for reading.

The prior art, either individually or in combination, further does not teach a first router routing data items to a particular storage buffer based on the first part of the addresses in a data source associated with the data items, and a plurality of second routers for each storage buffer routing the data items to one of the slots of the particular storage buffer based on the second part of the addresses in the data source associated with the data items.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Drawings

3. Formal drawings are now required and must be filed within the THREE MONTH shortened statutory period set for reply in the "NOTICE OF ALLOWABILITY" (PTOL-37 or PTO-37). Failure to timely submit the drawings will result in **ABANDONMENT** of the application. The drawings should be submitted as a separate paper with a transmittal letter which is addressed to the Official Draftsperson. The art unit number, application number and number of drawing sheets should be written on the reverse side of the drawings.

The drawings filed on 01/22/99 are objected to because "STOARGE" [31] in FIG. 7 is misspelled, and because "STOAGE" [307] in FIG. 11 is misspelled. The correct spelling is "STORAGE" in both situations. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

New formal drawings are also required in this application because the drawings submitted on 01/22/99 are objected by the Draftsperson under 37 CFR 1.84 or 1.152 in Paper No. 7. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the Patent and Trademark Office no longer prepares new drawings.



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Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanh Quang Nguyen whose telephone number is (703) 305-0138, and whose e-mail address is tanh.nguyen36@uspto.gov. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin, can be reached on (703) 308-3301. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7238 for after final, (703) 746-7239 for formal communications, (703) 746-7240 for Customer Service, or (703) 746-5672 for informal or draft communications (please label "PROPOSED" or "DRAFT").

Any inquiry of a general nature relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Mail responses to this action should be sent to:

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Washington, D. C. 20231

Hand-delivered responses should be brought to:

Crystal Park II, 2121 Crystal Drive, Arlington, Va, Sixth Floor

(Receptionist).

TQN

February 5, 2002

